

WHAT IS CLAIMED IS:

1. A method of changing a physical data rate of an air interface on a per channel basis, the method comprising:

providing a plurality of logical communication channels, the plurality of logical communication channels being configured to

5 communicate a signal;

providing a control channel that assigns data rates to the plurality of logical channels; and

changing the data rates of the plurality of logical channels on a per channel basis.

10 2. The method of claim 1, further comprising providing a high data rate channel.

3. The method of claim 1, further comprising using a frequency hopping spread spectrum method to transmit the signal over the plurality of logical communication channels.

15 4. The method of claim 1, wherein the control channel operates at a low data rate.

5. The method of claim 1, wherein the plurality of logical communication channels operate at a data rate selected by the control channel.

20 6. The method of claim 5, wherein the selected data rate is a multiple of a basic data rate.

7. The method of claim 1, wherein logical communication channels having a high data rate communicate data information and logical communication channels having a low data rate communicate
25 voice information.

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8. The method of claim 7, wherein the high data rate is between 32 k bits/sec and 256 k bits/sec and the low data rate is between 16 k bits/sec and 32 k bits/sec.

5 9. The method of claim 1, wherein the signal is communicated between a portable telephone and a base station.

10. An air interface comprising:
at least one logical communication channel configured to communicate a signal; and
a control channel that assigns a data rate to each of the at least one logical communication channel, the control channel being configured to change the data rate assigned to each of the at least one logical communication channel.

15 11. The air interface of claim 10, wherein the control channel changes the data rate assigned to each of the at least one logical communication channel based upon information about data communicated with the signal.

12. The air interface of claim 11, wherein the information about data communicated with the signal comprises data type information.

20 13. The air interface of claim 11, wherein the information about data communicated with the signal comprises signal quality information.

14. The air interface of claim 10, wherein the communicated signal is transmitted using a frequency hopping spread spectrum method.

15. The air interface of claim 10, wherein the control channel includes interfered carrier information.

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16. The air interface of claim 10, wherein the control channel uses cyclic redundancy checks (CRC) to determine whether the at least one logical communication channels are disturbed.

17. A wireless communication system which provides for low data rate services as well as higher data rate services without a reduction in sensitivity characteristic to switching modulation schemes, the communication system comprising:

a communication device capable of receiving and sending communication signals;

a base station capable of receiving and sending communication signals; and

an air interface of wireless communications between the communication device and the base station, the air interface including a control channel and a plurality of logical communication channels, the control channel assigning data rates to the plurality of logical communication channels on a per channel basis.

18. The communication system of claim 17, wherein the air interface includes a high data rate communication channel.

19. The communication system of claim 17, wherein the control channel operates at a lowest possible data rate, thereby using a lowest bandwidth and ensuring best sensitivity.

20. The communication system of claim 17, wherein logical communication channels having a high data rate communicate data information and logical communication channels having a low data rate communicate voice information.

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21. The communication system of claim 20, wherein the high data rate is between 32 k bits/sec and 256 k bits/sec and the low data rate is between 16 k bits/sec and 32 k bits/sec.

22. The communication system of claim 17, wherein the
5 communication device is a personal digital assistant (PDA).

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